CLAIMS:

1. (currently amended) A system for imaging a thermal barrier coating of a rotating turbine blade comprising:

an image projector receiving a moving infrared image corresponding to infrared radiation emitted by a thermal barrier coating of ~~the~~ a rotating turbine blade and projecting a movement-compensated image;

an infrared image receptor operable for receiving the movement-compensated image without a need for an illumination source;

a sensor generating information indicative of a velocity of the rotating turbine blade; and

a processor generating a drive signal responsive to the information for controlling a position of the image projector to receive the moving infrared image at a desired angular position and to project the movement-compensated image so that the movement-compensated image appears stationary relative to the infrared image receptor.

2. (original) The system of claim 1, further comprising a sensor generating information indicative of a position of the rotating turbine blade.

3. (original) The system of claim 2, further comprising a processor generating a shutter signal responsive to the information for activating the image receptor to acquire the movement-compensated image corresponding to a desired position of the blade.

4. (original) The system of claim 1, wherein the image projector comprises:

a mirror; and

a positioner moving the mirror.

5. (original) The system of claim 4, wherein the positioner comprises a reciprocal driver to move the mirror about an axis.

6. (original) The system of claim 4, wherein the positioner comprises a rotational driver to rotate the mirror about a rotational axis.

7. (original) The system of claim 1, wherein the sensor comprises a magnetic reluctance sensor.

8. (currently amended) A method of imaging a thermal barrier coating of a rotating turbine blade of a turbine rotor comprising:

receiving infrared radiation emitted by a first blade of a row of rotating blades of a turbine rotor using a movable image projector without using an illumination source;

sensing a velocity of rotation of the rotating blades;

using the velocity to adjust a phase of movement of the movable image projector relative to the first blade to synchronize a projected image of the first blade relative to an image receptor;

using the velocity to adjust a phase of movement of the movable image projector to bring a second blade into a field of view of the image projector; and

using the velocity to adjust the phase of movement of the image projector to make a projected image of the second blade appear stationary relative to the image receptor.

~~positioning an image projector to receive a moving image of the rotating blade and to project a movement-compensated image;~~

~~receiving the movement-compensated image at an image receptor;~~

~~sensing a velocity of the rotating turbine blade;~~

~~controlling a position of the image projector to project the movement-compensated image so that the movement-compensated image appears stationary relative to the image receptor.~~

9. (currently amended) The method of claim 8, further comprising sensing a position of at least one of the rotating turbine blades.

10. (currently amended) The method of claim 9, further comprising triggering the image receptor to acquire the ~~movement-compensated~~projected image of the second blade when the second blade is positioned at a desired angular position.

11. (currently amended) The method of claim 8, further comprising maintaining an angle of incidence of the projected image of the second blade with respect to the image projector so that the ~~movement-compensated~~projected image of the second blade is projected to a desired area on the image receptor.

12. (currently amended) The method of claim 8, further comprising disposing the image projector radially outward of the rotating turbine blades.

13. (currently amended) The method of claim 12 further comprising disposing the image projector along a line of view parallel with an axis of ~~the~~ rotation of the turbine blades.

14. (currently amended) The method of claim 8, wherein sensing the velocity further comprises disposing a magnetic reluctance sensor radially outward of a turbine blade rotation path to generate a proximity signal indicative of the velocity and the angular position of at least one of the blades.

15. – 16. (cancelled)